

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants(s): Leister et al.
Serial No. : 10/537,752
For: PROCESS FOR PRODUCING BOROSILICATE GLASSES, BORATE
 GLASSES AND CRYSTALLIZING BORON-CONTAINING MATERIALS
Filed: December 5, 2005
Examiner: John M. Hoffmann
Art Unit: 1791
Confirmation No. : 5178
Customer No. : 27,623

Attorney Docket No.: 2133.089USU

**Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

REPLY BRIEF

Dear Sir:

In response to the Examiner's Answer dated April 22, 2010, the Reply Brief filed herewith is believed to comply with the requirements set forth in 37 C.F.R. §41.41.

Status of the Claims

Claims 1-5, 8-9, 11, 13-19, 22, and 28-37 are the subject of this Appeal. Claim 1 is the sole independent claim. Claims 6-7 and 23-27 have been cancelled. Dependent claims 10, 12, and 20-21 have been withdrawn, but remain pending for rejoinder upon allowance of any of generic claims 1-8, 11, and 14-18.

Independent claim 1, and claims 2-5, 11, 13-19, and 22, were rejected under 35 U.S.C. §103(a) over Appellants' own International Publication No. WO/2001/53222 to Kunert et al. (Kunert) in view of U.S. Patent No. 6,713,419 to Onozawa et al. (Onozawa). Claims 8-9 were rejected under 35 U.S.C. §103(a) over Kunert and Onozawa in further view of U.S. Patent No. 6,817,212 to Romer et al. (Romer).

Independent claim 1, and claims 29 and 37, were rejected under 35 U.S.C. §103(a) over Kunert in view of U.S. Patent No. 3,193,400 to Geffcken (Geffcken).

Independent claim 1, and claim 28, were rejected under 35 U.S.C. §103(a) over Kunert in view of U.S. Patent No. 5,648,302 to Brow et al. (Brow).

Independent claim 1, and dependent claim 30, were rejected under 35 U.S.C. §103(a) over Kunert in view of U.S. Patent No. 4,358,544 to Skedgell (Skedgell).

Independent claim 1, and dependent claims 30-36, were rejected under 35 U.S.C. §103(a) over Kunert in view of U.S. Patent No. 3,963,505 to Dumesnil (Dumesnil).

In sum, independent claim 1 stands finally rejected under 35 U.S.C. §103(a) over Kunert in view of each of Onozawa, Geffcken, Brow, Skedgell, and Dumesnil.

Grounds of rejection to be reviewed on appeal

(a) **First Ground** - The first ground presented for review is the propriety of the final rejection of claims 1-5, 8-9, 11, 13-19, and 22 under 35 U.S.C. §103(a) over Kunert in view of Onozawa.

(b) **Second Ground** - The second ground presented for review is the propriety of the final rejection of claims 1, 29, and 37 under 35 U.S.C. §103(a) over Kunert in view of Geffcken.

(c) **Third Ground** - The third ground presented for review is the propriety of the final rejection of claims 1 and 28 under 35 U.S.C. §103(a) over Kunert in view of Brow.

(d) **Fourth Ground** - The fourth ground presented for review is the propriety of the final rejection of claims 1 and 30 under 35 U.S.C. §103(a) over Kunert in view of Skedgell.

(e) **Fifth Ground** - The fifth ground presented for review is the propriety of the final rejection of claims 1 and 30-36 under 35 U.S.C. §103(a) over Kunert in view of Dumesnil.

Arguments

(a) **First Ground** - Claims 1-5, 8-9, 11, 13-19, and 22 stand or fall together

Claims 1-5, 8-9, 11, 13-19, and 22 were rejected under 35 U.S.C. §103(a) over Kunert in view Onozawa. Appellants respectfully maintain that claims 1-5, 8-9, 11, 13-19, and 22 were improperly rejected.

For all of the reasons set forth in the Appeal Brief, Appellants maintain that Kunert fails to disclose or suggest the "process" requiring the "materials" and "spacing" recited by claim 1 and that Onozawa fails to cure these deficiencies.

Furthermore, the Final Office Action and Examiner's Answer fail to take into account the electromagnetic field screening of the tubes increases with decreasing spacing between the tubes. Thus, it is not obvious that the small "spacing" recited by claim 1 is sufficient to couple the electromagnetic field into the melt.

Further, independent claim 1 is directed to "process for producing a borate-containing, **low-alkali material**".

Although Kunert mentions lanthanum-borate glasses, many lanthanum-borate glasses such as those of Kunert contain alkali oxides. Kunert, however, fails to disclose the suitability of low alkaline lanthanum borate glasses in the manner claimed.

The Examiner's Answer asserts that Onozawa discloses the use of lanthanum borate glasses within the scope of the compositional limitations of claim 1. Appellants disagree. Rather, Appellants submit that Onozawa discloses glasses having Li₂O to 2.5 to 8.0 weight percent, which cannot be regarded as a low alkali material as claimed.

Further, the Examiner's Answer asserts that it would have been obvious to improve the glass of Onozawa using the method of Kunert. Appellants disagree.

Melts of a borate containing, low-alkali material as recited by claim 1, are generally expected to be non-conductive, or at least low-conductive. This is due to the fact that the electrical conductivity in glasses is in general caused by the alkali-ions which have a high mobility in the melt.

Applying an alternating electromagnetic field to a low- to non-conductive material is thought of by those skilled in the art to be useless since it would be expected that the electromagnetic field is not able to deposit sufficient energy to the melt so as to overcompensate thermal dissipation.

Thus, Appellants maintain that the glass of Onozawa, which is not a low alkali material, provides no teaching or suggestion that one skilled in the art could successfully use low-alkali material in a skull crucible in the manner claimed.

Accordingly, reconsideration and withdrawal of the rejection to claims 1-5, 8-9, 11, 13-19, and 22 over Onozawa and of Kunert are respectfully requested.

(b) **Second Ground** - Claims 1, 29, and 37 stand or fall together

Claims 1, 29, and 37 were finally rejected under 35 U.S.C. §103(a) over Kunert in view of Geffcken. Appellants respectfully maintain that claims 1, 29, and 37 were improperly rejected.

For all of the reasons set forth in the Appeal Brief, Appellants maintain that Kunert fails to disclose or suggest the "process" requiring the "materials" and "spacing" recited by claim 1 and that Geffcken fails to cure these deficiencies.

Appellants maintain that the glasses according to Geffken, which includes a considerable amount of alkali oxides, also provides no teaching or suggestion that one skilled in the art could successfully use low-alkali material in a skull crucible as in Kunert in the manner claimed.

Accordingly, reconsideration and withdrawal of the rejection to claims 1, 29, and 37 over Kunert and Geffken are respectfully requested.

(c) **Third Ground** - Claims 1 and 28 stand or fall together

Claims 1 and 28 were finally rejected under 35 U.S.C. §103(a) over Kunert in view of Brow. Appellants respectfully maintain that claims 1 and 28 were improperly rejected.

For all of the reasons set forth in the Appeal Brief, Appellants maintain that Kunert fails to disclose or suggest the "process" requiring the "materials" and "spacing" recited by claim 1 and that Brow fails to cure these deficiencies.

Brow discloses glass having Li_2O and Na_2O each of content of 8 mole %, which is also clearly not low or absent alkali content.

Again, it is well known for a person skilled in the art that the electrical conductivity of a glass melt is caused by alkali-ions such that Brow provides no teaching or suggestion that one skilled in the art could successfully use low-alkali material in a skull crucible as in Kunert.

Accordingly, reconsideration and withdrawal of the rejection to claims 1 and 28 are respectfully requested.

(d) Fourth Ground - Claims 1 and 30 stand or fall together

Claims 1 and 30 were finally rejected under 35 U.S.C. §103(a) over Kunert in view of Skedgell. Appellants respectfully maintain that claims 1 and 30 were improperly rejected.

For all of the reasons set forth in the Appeal Brief, Appellants maintain that Kunert fails to disclose or suggest the "process" requiring the "materials" and "spacing" recited by claim 1 and that Skedgell fails to cure these deficiencies.

Further, independent claim 1 is directed to "process for producing a borate-containing, **low-alkali material**".

Skedgell, much like Onozawa discussed above, discloses glasses that cannot be regarded as a low alkali material as claimed. Thus, even if one were to combine Skedgell and Kunert the combination of claim 1 is still not taught or suggested.

Also, since the electrical conductivity of a glass melt is caused by alkali-ions which are abundant in the glass of Skedgell, Skedgell provides no teaching or suggestion that one skilled in the art could successfully use low-alkali material in a skull crucible as in Kunert

Accordingly, reconsideration and withdrawal of the rejection to claims 1 and 30 are respectfully requested.

(e) Fifth Ground - Claims 1 and 30-36 stand or fall together

Claims 1 and 30-36 were finally rejected under 35 U.S.C. §103(a) over Kunert in view of Dumesnil. Appellants respectfully maintain that claims 1 and 30-36 were

improperly rejected.

For all of the reasons set forth in the Appeal Brief, Appellants maintain that Kunert fails to disclose or suggest the "process" requiring the "materials" and "spacing" recited by claim 1 and that Dumesnil fails to cure these deficiencies.

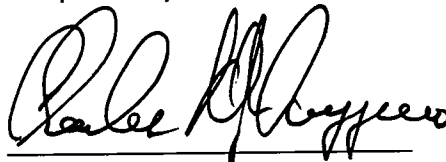
Appellants maintain that the glasses according to Dumesnil, which includes a considerable amount of alkali oxides, also provides no teaching or suggestion that one skilled in the art could successfully use low-alkali material in a skull crucible as in Kunert in the manner claimed.

Accordingly, reconsideration and withdrawal of the rejection to claims 1 and 30-36 over Dumesnil and Kunert are respectfully requested.

Summary

In summary, Appellants respectfully request that the Board of Appeals reverse the final rejections of claims 1-5, 8-9, 11, 13-22, and 28-37 and pass the present application, including withdrawn claims 10, 12, and 20-21 which depend from one or more generic claims, to issuance.

Respectfully submitted,



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